



**PATENT**  
Docket No. 05634/008

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): John C. Harvey, James W.  
Cuddihy

Serial No.: 08/113,329

Filing Date: 30 Aug 93

For: Signal Processing Apparatus and Methods

Group Art Unit: 2615

Examiner: Unassigned

Commissioner of Patents and Trademarks  
Washington D.C. 20231



**INFORMATION DISCLOSURE STATEMENT**

SIR:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56(a) and in conformance with the procedures of 37 C.F.R. §§ 1.97-98 and M.P.E.P. § 609, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449.

The above-referenced application claims priority under 35 U.S.C. § 120 of the following applications:

<u>Serial No.</u>	<u>Filing Date</u>
08/056,501	May 3, 1993
07/849,226	March 10, 1992
07/588,126	September 25, 1990
07/096,096	September 11, 1987
06/829,531	February 14, 1986
06/317,510	November 3, 1981

Therefore, no copies of those listed references that were cited by or submitted to the PTO in the priority applications are provided herewith. Applicants would like to identify reference categories J and R on the enclosed list of Reference Categories as being, in applicants' view, most relevant to the claims submitted in the Preliminary Amendment filed herewith. Other references may also be relevant.


**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

1993

Attorney Docket No.  
5634/8Serial No.  
08/113,329**Applicant(s)**

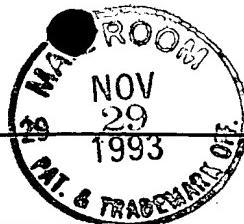
John C. Harvey, James W. Cuddihy

**Filing Date**

August 30, 1993

Group  
2013**U. S. PATENT DOCUMENTS**

EXAMINER INITIAL	PATENT NUMBER	PATENT DATE	NAME	CLASS/ SUBCLASS
	2,573,349**	Oct. 30, 1951	Miller et al.	177/353
	2,769,023**	Oct. 30, 1956	Loew et al.	178/5.1
	2,788,387**	Apr. 9, 1957	Druz	178/5.1
	2,864,885**	Dec. 16, 1958	Morris	178/5.1
	2,866,962**	Dec. 30, 1958	Ellet	340/147
	3,016,091**	Jan. 9, 1962	Daniele	162/391
	3,071,642**	Jan. 1, 1963	Mountjoy et al.	178/5.1
	3,213,201**	Oct. 19, 1965	Flood et al.	179/15
	3,238,297**	Mar. 1, 1966	Pawley et al.	178/22
	3,531,586**	Sept. 29, 1970	Bass et al.	178/6
	3,536,833**	Oct. 27, 1970	Guanella	178/22
	3,573,747**	Apr. 6, 1971	Adams et al.	340/172.5
	3,609,697**	Sept. 28, 1971	Blevins et al.	340/172.5
	3,657,699**	Apr. 18, 1972	Rocher et al.	340/146.1
	3,659,046**	Apr. 25, 1972	Angeleri et al.	178/22
	3,668,307**	June 6, 1972	Face et al.	178/5.6
	3,684,823**	Aug. 15, 1972	McVoy	178/5.1
	3,693,090**	Sept. 19, 1972	Gabriel	325/308
	3,729,581**	Apr. 24, 1973	Anderson	178/6.8
	3,731,197**	May 1, 1973	Clark	325/32
	3,733,430**	May 15, 1973	Thompson et al.	178/5.1
	3,736,369**	May 29, 1973	Vogelman et al.	178/5.1
	3,749,845**	July 31, 1973	Fraser	179/15
	3,773,977**	Nov. 20, 1973	Guanella	179/1.5
	3,777,053**	Dec. 4, 1973	Wittig et al.	178/5.1
	3,789,137**	Jan. 29, 1974	Newell	178/6.6
	3,798,359**	Mar. 19, 1974	Feistel	178/22



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	3,798,610**	Mar. 19, 1974	Bliss et al.	340/172.5	
	3,803,491**	Apr. 9, 1974	Osborn	325/53	
	3,819,852**	June 25, 1974	Wolf	178/5.6	
	3,824,332**	July 16, 1974	Horowitz	178/5.1	
	3,824,467**	July 16, 1974	French	325/32	
	3,825,893**	July 23, 1974	Bossen et al.	340/146.1	
	3,833,757**	Sept. 3, 1974	Kirk, Jr. et al.	178/5.6	
	3,842,196**	Oct. 15, 1974	Louglin	358/12	
	3,845,391**	Oct. 29, 1974	Crosby	325/64	
	3,882,392**	May 6, 1975	Harney	325/53	
	3,885,089**	May 20, 1975	Callais et al.	178/5.1	
	3,886,302**	May 27, 1975	Kosco	178/5.1	
	3,890,461**	June 17, 1975	Vogelman et al.	178/5.1	
	3,891,792**	June 24, 1975	Kimura	178/5.8R	
	3,893,031**	July 1, 1975	Majeau et al.	325/32	
	3,894,176**	July 8, 1975	Mellon	178/5.1	
	3,899,633**	Aug. 12, 1975	Sorenson et al.	178/5.1	
	3,911,216**	Oct. 7, 1975	Bartek et al.	178/22	
	3,914,534**	Oct. 21, 1975	Forbes	178/5.1	
	3,916,091**	Oct. 28, 1975	Kirk, Jr. et al.	178/5.1	
	3,919,462**	Nov. 11, 1975	Hartung et al.	178/5.1	
	3,921,151**	Nov. 18, 1975	Guanella	340/172.5	
	3,934,079**	Jan. 20, 1976	Barnhart	178/5.1	
	3,936,593**	Feb. 3, 1976	Aaronson et al.	178/5.1	
	3,936,594**	Feb. 3, 1976	Schubin et al.	178/5.1	
	3,956,615**	May 11, 1976	Anderson et al.	235/61.7B	
	3,970,790**	July 20, 1976	Guanella	179/1.5S	



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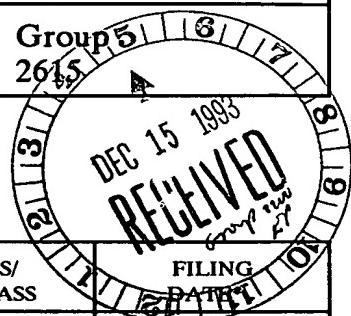
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2615



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EXAMINER INITIAL	PATENT NUMBER	PATENT DATE	NAME	CLASS/ SUBCLASS	FILING DATE
	3,975,583**	Aug. 17, 1976	Meadows	175/5.6	
	3,987,398**	Oct. 19, 1976	Fung	325/309	
	3,997,718**	Dec. 14, 1976	Ricketts et al.	178/6.8	
	4,024,574**	May 17, 1977	Nieson	358/117	
	4,025,851**	May 24, 1977	Hazelwood et al.	325/31	
	4,025,947**	May 24, 1977	Michael	358/86	
	4,025,948**	May 24, 1977	Loshin	358/122	
	4,031,548**	June 21, 1977	Kato et al.	358/188	
	4,048,619**	Sept. 13, 1977	Forman, Jr. et al.	340/154	
	4,049,906**	Sept. 20, 1977	Hafner et al.	178/2C	
	4,058,830**	Nov. 15, 1977	Gulnet et al.	358/86	
	4,068,264**	Jan. 10, 1978	Pires	358/122	
	4,079,419**	Mar. 14, 1978	Siegle et al.	358/193	
	4,081,612**	Mar. 28, 1978	Hafner	179/15BA	
	4,081,753**	Mar. 28, 1978	Miller	325/396	
	4,081,831**	Mar. 28, 1978	Tang et al.	358/114	
	4,091,417**	May 23, 1978	Nieson	358/117	
	4,104,486**	Aug. 1, 1978	Martin et al.	179/2	
	4,112,464**	Sept. 5, 1978	Gulf et al.	358/122	
	4,115,662**	Sept. 19, 1978	Gulnet et al.	179/15BV	
	4,115,807**	Sept 19, 1978	Pires	358/122	
	4,120,030**	Oct. 10, 1978	Johnstine	364/200	
	4,130,833**	Dec. 19, 1978	Choenet	358/122	
	4,138,726**	Feb. 6, 1979	Girault et al.	364/521	
	4,160,120**	July 3, 1979	Barnes et al.	178/22	
	4,161,751**	July 17, 1979	Ost	358/114	
	4,163,254**	July 31, 1979	Block et al.	358/122	



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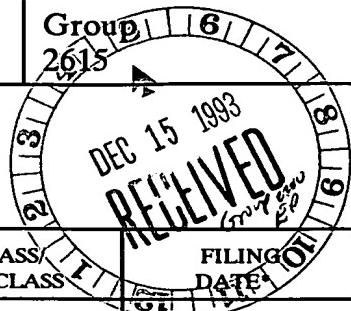
EXAMINER INITIAL	PATENT NUMBER	PATENT DATE	NAME	CLASS/ SUBCLASS	FILING DATE*
	4,163,255**	July 31, 1979	Pires	358/122	
	4,168,396**	Sept. 18, 1979	Best	178/22	
	4,170,782**	Oct. 9, 1979	Miller	358/84	
	4,171,513**	Oct. 16, 1979	Otey et al.	325/32	
	4,172,213**	Oct. 23, 1979	Barnes et al.	178/22	
	4,186,413**	Jan. 29, 1980	Mortimer	358/146	
	4,196,310**	Apr. 1, 1980	Forman et al.	178/22	
	4,200,770**	Apr. 29, 1980	Hellman et al.	178/22	
	4,200,913**	Apr. 29, 1980	Kuhar et al.	364/900	
	4,215,366**	July 29, 1980	Davidson	358/124	
	4,215,370**	July 29, 1980	Kirk, Jr.	358/146	
	4,225,884**	Sept. 30, 1980	Block et al.	358/122	
	4,230,990**	Oct. 28, 1980	Lert, Jr et al.	455/67	
	4,232,193**	Nov. 4, 1980	Gerard	179/1.5R	
	4,236,217**	Nov. 25, 1980	Kennedy	364/483	
	4,245,245**	Jan. 13, 1981	Matsumoto et al.	358/122	
	4,247,106**	Jan. 27, 1981	Jeffers et al.	273/85G	
	4,250,524**	Feb. 10, 1981	Tomizawa	358/122	
	4,253,114**	Feb. 24, 1981	Tang et al.	358/114	
	4,253,157**	Feb. 24, 1981	Kirschner et al.	364/900	
	4,262,329**	Apr. 14, 1981	Bright et al.	364/200	
	4,264,925**	Apr. 28, 1981	Freeman et al.	358/86	
	4,266,243**	May 5, 1981	Shutterly	358/121	
	4,275,411**	June 23, 1981	Lippel	358/13	
	4,283,602**	Aug. 11, 1981	Adams et al.	179/1.5R	
	4,284,976**	Aug. 18, 1981	Gable et al.	340/147	
	4,287,592**	Sept. 1, 1981	Paulish et al.	370/88	

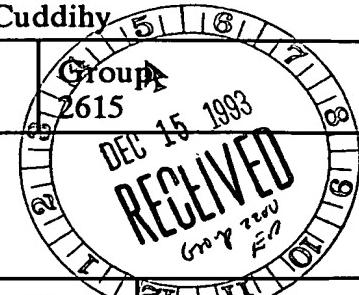


<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>	Attorney Docket No. 5634/8	Serial No. 08/113,329
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EXAMINER INITIAL	PATENT NUMBER	PATENT DATE	NAME	CLASS / SUBCLASS	FILING DATE
	4,288,809**	Sept. 8, 1981	Yabe	358/12	
	4,290,141**	Sept. 15, 1981	Anderson et al.	455/2	
	4,292,650**	Sept. 29, 1981	Henderickson	358/173	
	4,295,223**	Oct. 13, 1981	Shutterly	455/72	
	4,302,771**	Nov. 24, 1981	Gargini	358/86	July 23, 1980
	4,304,990**	Dec. 8, 1981	Atalla	235/380	Feb. 4, 1980
	4,305,101**	Dec. 8, 1981	Yarbrough et al.	360/69	Apr. 16, 1979
	4,305,131**	Dec. 8, 1981	Best	364/521	Mar. 31, 1980
	4,306,289**	Dec. 15, 1981	Lumley	364/200	Feb. 4, 1980
	4,306,305**	Dec. 15, 1981	Doi et al.	371/38	Oct. 19, 1979
	4,307,446**	Dec. 22, 1981	Barton et al.	364/200	May 2, 1979
	4,310,854**	Jan. 12, 1982	Baer	358/143	Aug. 29, 1979
	4,312,016**	Jan. 19, 1982	Glaab et al.	358/188	Feb. 2, 1979
	4,313,132**	Jan. 26, 1982	Doles et al.	358/114	Oct. 31, 1979
	4,314,367**	Feb. 2, 1982	Bakka et al.	370/60	Jan. 17, 1980
	4,316,055**	Feb. 16, 1982	Feistel	178/22.06	Dec. 30, 1976
	4,316,245**	Feb. 16, 1982	Luu et al.	364/200	Dec. 7, 1978
	4,318,125**	Mar. 2, 1982	Shutterly	358/121	Apr. 25, 1979
	4,319,079**	Mar. 9, 1982	Best	178/22.09	Jan. 17, 1980
	4,322,745**	Mar. 30, 1982	Saeki et al.	358/123	Mar. 21, 1980
	4,323,921**	Apr. 6, 1982	Guillou	358/114	Jan. 23, 1980
	4,323,922**	Apr. 6, 1982	den Toonder et al.	358/117	Dec. 17, 1979
	4,325,078**	Apr. 13, 1982	Seatom et al.	358/117	Nov. 20, 1979
	4,329,684**	May 11, 1982	Monteath et al.	340/707	Jan. 15, 1980
	4,331,973**	May 25, 1982	Eskin et al.	358/84	Oct. 20, 1980
	4,331,974**	May 25, 1982	Cogswell et al.	358/86	Oct. 21, 1980
	4,332,980**	June 1, 1982	Reynolds et al.	179/2A	May 30, 1980



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	4,334,242**	June 8, 1982	Mangold	358/127	Jan. 14, 1980
	4,336,553**	June 22, 1982	den Toonder et al.	358/120	May 14, 1980
	4,336,559**	June 22, 1982	Koyama et al.	360/73	Nov. 9, 1978
	4,337,480**	June 29, 1982	Bourassin et al.	358/93	Feb. 8, 1990
	4,337,483**	June 29, 1982	Guillou	358/114	Jan. 31, 1980
	4,338,628**	July 6, 1982	Payne et al.	358/120	Dec. 19, 1979
	4,339,798**	July 13, 1982	Hedges et al.	364/412	Dec. 17, 1979
	4,340,903**	July 20, 1982	Tamura	358/10	Aug. 6, 1980
	4,347,498**	Aug. 31, 1982	Lee et al.	340/825.02	Nov. 21, 1979
	4,347,532**	Aug. 31, 1982	Korver	358/183	Oct. 14, 1980
	4,353,088**	Oct. 5, 1982	den Toonder et al.	358/120	May 14, 1980
	4,354,201**	Oct. 12, 1982	Sechet et al.	358/122	June 11, 1980
	4,361,877**	Nov. 30, 1982	Dyer et al.	364/900	Feb. 5, 1980
	4,364,081**	Dec. 14, 1982	Hashimoto et al.	358/13	Apr. 16, 1981
	4,365,110**	Dec. 21, 1982	Lee et al.	178/22.10	June 5, 1979
	4,375,579**	Mar. 1, 1983	Davida et al.	178/22.10	Jan. 30, 1980
	4,375,651**	Mar. 1, 1983	Templin et al.	358/191.1	July 27, 1981
	4,379,205**	Apr. 5, 1983	Wyner	178/22.10	June 22, 1979
	4,381,522**	Apr. 26, 1983	Lambert	358/86	Dec. 1, 1980
	4,388,643**	June 14, 1983	Aminetzah	358/123	Apr. 6, 1981
	4,389,671**	June 21, 1983	Posner et al.	358/124	Sept. 29, 1980
	4,390,898**	June 28, 1983	Bond et al.	358/119	Mar. 23, 1981
	4,390,901**	June 28, 1983	Keiser	358/147	Oct. 16, 1980
	4,394,691**	July 19, 1983	Amano et al.	358/194.1	July 30, 1981
	4,394,762**	July 19, 1983	Nabeshima	371/38	Jan. 6, 1981
	4,395,757**	July 26, 1983	Bienvenu et al.	364/200	Apr. 14, 1981
	4,398,216**	Aug. 9, 1983	Field et al.	358/121	Sept. 19, 1980

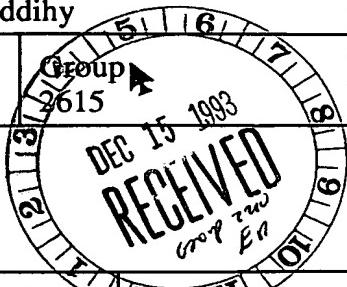
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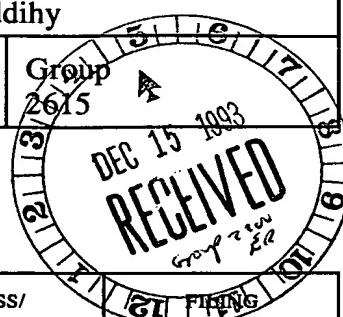
EXAMINER INITIAL	PATENT NUMBER	PATENT DATE	NAME	CLASS/ SUBCLASS	GTI FILING DATE*
	4,400,587**	Aug. 23, 1983	Taylor et al.	179/27D	Aug. 25, 1981
	4,404,589**	Sept. 13, 1983	Wright, Jr.	358/86	Oct. 21, 1980
	4,405,942**	Sept. 20, 1983	Block et al.	358/119	Mar. 3, 1982***
	4,410,917**	Oct. 18, 1983	Newdoll et al.	360/15	Sept. 14, 1981
	4,413,339**	Nov. 1, 1983	Riggle et al.	371/38	June 24, 1981
	4,424,532**	Jan. 3, 1984	den Toonder et al.	358/120	May 9, 1983***
	4,425,581**	Jan. 10, 1984	Scweppe et al.	358/148	Apr. 17, 1981
	4,433,207**	Feb. 21, 1984	Best	178/22.09	Sept. 10, 1981
	4,434,323**	Feb. 28, 1984	Levine et al.	178/22.17	June 29, 1981
	4,434,436**	Feb. 28, 1984	Kleykamp et al.	358/118	July 13, 1981
	4,434,464**	Feb. 28, 1984	Suzuki et al.	364/200	Mar. 31, 1981
	4,446,519**	May 1, 1984	Thomas	364/200	May 26, 1981
	4,467,139**	Aug. 21, 1984	Mollier	178/22.08	Mar. 12, 1981
	4,467,356**	Aug. 21, 1984	McCoy	358/146	Sept. 24, 1981
	4,471,163**	Sept. 11, 1984	Donald et al.	178/22.08	Oct. 5, 1981
	4,471,164**	Sept. 11, 1984	Henry	178/22.11	Oct. 13, 1981
	4,475,123**	Oct. 2, 1984	Dumbauld et al.	358/114	Apr. 2, 1981
	4,488,179**	Dec. 11, 1984	Krüger et al.	358/181	Sept. 23, 1981
	4,513,174**	Apr. 23, 1985	Herman	178/22.08	Mar. 19, 1981
	4,528,588**	July 9, 1985	Löfberg	358/122	Sept. 25, 1981
	4,528,589**	July 9, 1985	Block et al	358/122	Feb. 1, 1984***
	4,536,791**	Aug. 20, 1985	Campbell et al.	358/122	Mar. 31, 1981
	4,593,353**	June 3, 1986	Pickholtz	364/200	Oct. 26, 1981
	4,598,288**	July 1, 1986	Yarbrough et al.	340/825.34	Dec. 20, 1983***
	4,689,661**	Aug. 25, 1987	Barbieri et al.	358/12	June 22, 1981


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	Re. 31,735**	Nov. 13, 1984	Davidson	358/124	July 26, 1982***

\* - If pertinent

\*\* - Indicates copy filed in prior application.

\*\*\* - Claims priority from parent application filed prior to Nov. 3, 1981

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EXAMINER INITIAL	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY	CLASS/ SUBCLASS	TRANSLATION	
					YES	NO
	WO 81/02961	Oct. 15, 1981	PCT Application	H04N 7/16, 7/04	n/a	
	0 055 674	July 7, 1982	EPO		n/a	
	1 554 411	Oct. 17, 1979	Great Britain	H04b 3/54		X
	2 034 995	June 11, 1980	Great Britain	H03J 7/18, 5/00		X
	23 38 380	Feb. 13, 1975	Germany		abstract	X
	29 18 846	Nov. 13, 1980	Germany	F26B 12/02	X	
	56-47179	Apr. 28, 1981	Japan		X	

\* - Copies filed with prior application

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EXAMINER INITIAL	AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.
	James, A., "ORACLE - Broadcasting the Written Word," <u>Wireless Word</u> , July 1975.
	Carne, E. Bryan, "The Wired Household," <u>IEEE Spectrum</u> , October 1979, p. 61-66.
	McKenzie, G.A., "ORACLE - An Information Broadcasting Service Using Data Transmission in the Vertical Interval," <u>Journal of the SMPTE</u> , vol. 83, Number 1, January 1974, pp. 6-10.
	Edwardson, S.M., "CEEFAX: A Proposed New Broadcasting Service," <u>Journal of the SMPTE</u> , January 1974, p. 14-19.

\* - Copies filed with prior application

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if citation considered, whether or not citation is in conformance with M.P.E.P. 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

## **REFERENCE CATEGORIES**

**U.S. Patent Application Ser. No. 08/113,329**

### **GROUP A**

2,573,349, 2,788,387, 2,864,885, 3,071,642, 3,238,297, 3,531,586, 3,536,833,  
3,657,699, 3,684,823, 3,733,430, 3,736,369, 3,824,332, 3,885,089, 3,899,633,  
3,914,534, 3,919,462, 3,934,079, 3,936,593, 3,936,594, 3,987,398, 4,025,947,  
4,025,948, 4,058,830, 4,081,831, 4,130,833, 4,161,751, 4,253,114, 4,266,243,  
4,304,990, 4,305,101, 4,313,132, 4,318,125, 4,322,745, 4,323,921, 4,323,922,  
4,325,078, 4,336,553, 4,338,628, 4,353,088, 4,354,201, 4,364,081, 4,365,110,  
4,379,205, 4,388,643, 4,389,671, 4,390,898, 4,398,216, 4,405,942, 4,424,532,  
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### **GROUP B**

2,573,349, 2,788,387, 2,864,885, 3,071,642, 3,531,586, 3,833,757, 3,934,079,  
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4,528,589

### **GROUP C**

2,769,023, 2,866,962, 3,071,642, 3,238,297, 3,777,053, 3,882,392, 3,886,302,  
3,890,461, 3,894,176, 3,899,633, 3,919,462, 3,934,079, 3,997,718, 4,058,830,  
4,068,264, 4,081,831, 4,112,464, 4,115,662, 4,161,751, 4,163,255, 4,215,366,  
4,253,114, 4,292,650, 4,322,745, 4,323,921, 4,323,922, 4,325,078, 4,338,628,  
4,354,201, 4,388,643, 4,389,671, 4,390,898, 4,434,436, 4,467,139, 4,475,123,  
4,528,589, 4,536,791, 4,598,288, U.K. Pat.No. 1,554,411

### **GROUP D**

3,213,201, 3,693,090, 3,789,137, 3,819,852, 4,025,947, 4,215,370, 4,364,081,  
4,365,110, 4,394,762, 4,398,216, 4,410,917, 4,424,532, 4,467,356

### **GROUP E**

3,573,747, 3,798,610, 4,253,157, 4,339,798, 4,593,353

### **GROUP F**

3,609,697, 3,798,359, 3,956,615, 4,120,030, 4,168,396, 4,262,329, 4,306,289,  
4,339,798, 4,375,579, 4,433,207, 4,434,464, 4,446,519, 4,471,163, 4,513,174

### **GROUP G**

3,659,046, 3,731,197, 3,773,977, 3,824,467, 3,893,031, 3,911,216, 3,921,151,  
3,970,790, 4,048,619, 4,058,830, 4,160,120, 4,171,513, 4,172,213, 4,196,310,  
4,232,193, 4,283,602, 4,323,921, 4,337,483, 4,379,205, 4,434,323

**GROUP H**

3,668,307, 3,833,757, 3,894,176, 3,934,079, 3,997,718, 4,245,245, 4,339,798,  
4,475,123, 4,528,589, 4,536,791

**GROUP I**

3,668,307, 3,845,391, 3,975,583, 4,247,106, 4,312,016, 4,329,684, 4,331,973,  
4,331,974, 4,332,980, 4,334,242, 4,354,201, 4,361,877, 4,375,651, 4,394,691,  
4,404,589, 4,475,123, 4,528,588, 4,528,589, 4,536,791, "The wired household," IEEE  
*Spectrum*, Oct. 1979

**GROUP J**

3,729,581, 4,031,548, 4,079,419, 4,081,753, 4,170,782, 4,186,413, 4,264,925,  
4,288,809, 4,305,101, 4,329,684, 4,331,973, 4,331,974, 4,336,559, 4,375,651,  
4,390,901, 4,394,691, 4,404,589, 4,598,288, All Foreign Patents, All Articles

**GROUP K**

3,733,430, 3,803,491, 3,833,757, 3,845,391, 4,025,851, 4,081,753, 4,104,486,  
4,170,782, 4,230,990, 4,250,524, 4,338,628, 4,528,588, "The wired household," IEEE  
*Spectrum*, Oct. 1979

**GROUP L**

3,749,845, 3,825,893, 4,048,619, 4,049,906, 4,058,830, 4,081,612, 4,247,106,  
4,284,976, 4,287,592, 4,306,305, 4,307,446, 4,314,367, 4,319,079, 4,332,980,  
4,347,498, 4,413,339, 4,536,791, 4,689,661, All Articles

**GROUP M**

3,749,845, 4,049,906, 4,081,612, 4,284,976, 4,307,446, 4,332,980, 4,347,498,  
4,400,587

**GROUP N**

3,798,137, 3,893,031, 3,911,216, 3,921,151, 4,172,213, 4,168,396, 4,200,770,  
4,215,366, 4,283,602, 4,304,990, 4,306,305, 4,316,055, 4,319,079, 4,365,110,  
4,375,579, 4,389,671, 4,433,207, 4,471,164

**GROUP O**

3,833,757, 3,842,196, 3,891,792, 3,916,091, 3,975,583, 4,186,413, 4,247,106,  
4,288,809, 4,310,854, 4,337,483, 4,339,798, 4,425,581, 4,536,791, All Articles

**GROUP P**

3,893,031, 4,305,131, 4,316,245, 4,395,757, 4,405,942, 4,424,532, 4,425,581,  
4,434,323

**GROUP Q**

4,264,925, 4,305,131, 4,329,684, 4,339,798

**GROUP R**

4,302,771, 4,381,522

**GROUP S**

4,312,016, 4,332,980, 4,334,242, 4,337,480, 4,394,691, 4,488,179, 4,536,791

"The wired household," IEEE *Spectrum*, Oct. 1979

**OTHER PATENTS UNCLASSIFIED BY GROUP**

4,025,947, 4,138,726, 4,200,913, 4,236,217, 4,275,411, 4,290,141, 4,295,223,  
4,316,245, 4,340,903, 4,395,757, 4,689,661